

New record of the slimy eel *Eptatretus polytremas* (Girard, 1855) (Myxiniformes, Myxinidae) in the extreme north of Chile

Felipe Méndez-Abarca¹, Renzo Pepe-Victoriano¹, Enrique A. Mundaca²

¹ Facultad de Recursos Naturales Renovables, Universidad Arturo Prat, Arica, Chile

² Facultad de Ciencias Agrarias y Forestales, Escuela de Agronomía, Universidad Católica del Maule, Curicó, Chile

Corresponding author: Felipe Méndez-Abarca (felipe.mendez@northamerican.cl)

Abstract. We report the capture of a single specimen of the slimy eel *Eptatretus polytremas* (Girard, 1855) off the coast of the city of Arica, northern Chile. This find extends the currently known range of the species by 1,600 km northwards from the city of Caldera (Atacama Region) to Puerto Montt (Lake Region). We discuss the importance of finding this species in the extreme north of Chile and the need for additional sampling to confirm the continuous range of *E. polytremas* between Caldera and Arica.

Key words. Arica, Chilean coast, Pacific Coast, range extension, Slug eel

Méndez-Abarca F, Pepe-Victoriano R, Mundaca EA (2024) New record of the slimy eel *Eptatretus polytremas* (Girard, 1855) (Myxiniformes, Myxinidae) in the extreme north of Chile. Check List 20 (2): 450–452. <https://doi.org/10.15560/20.2.450>

INTRODUCTION

The Myxinidae is a monophyletic family of marine craniates and includes six genera and about 89 species (Fernholm et al. 2013; Fernholm and Mincarone 2023). Within this family, *Eptatretus* Cloquet, 1819 has the most species and is almost cosmopolitan in its distribution, except for along the European coast (Fernholm 1998). *Eptatretus polytremas* (Girard 1855), commonly known as slimy eel or black eel (Reyes and Hüne 2012), is a demersal, non-migratory, scavenging species (Jansen 1966; Kato 1990; Fernholm 1998; Rubio et al. 2005; Méndez-Abarca and Pepe-Victoriano 2020) endemic to the Chilean coast. Its geographic range extends from the city of Valparaíso (Valparaíso Region) to Talcahuano (BíoBío Region), where it lives at depths of 10–350 m (Ayala 2016), although Daza et al. (2011) reported catches of individuals between Caldera and Puerto Montt at depths ranging between 10 and 600 m.

Here, we expand the geographic distribution of *E. polytremas* to northward to off the coast of the city of Arica, northern Chile. We discuss the importance of our find in terms of the need to better document the geographic range of this species by focusing on the gap between its previously known distribution and our new record.

METHODS

A single specimen of *E. polytremas* was captured on 17 November 2018 while autonomous diving, using an underwater hunting harpoon at a depth of 25 m in the Playa Arenillas Negras area off the coast of the city of Arica, Chile (Figure 1). The specimen was measured and subsequently immersed in 15% formaldehyde solution in a closed glass bottle. Due to rapid deterioration in formaldehyde, the skin was later removed and mounted in an expanded polyurethane mold, dehydrating the skin in a taxidermy oven for 90 min, for later display. It was then photographed and deposited in the marine fish collection of the Vida Salvaje - Museo Vivo, Fundación Reino Animal (FRA), Arica, Chile.

RESULTS

Eptatretus polytremas (Girard, 1855)

Figure 2

New record. CHILE – ARICA Y PARINACOTA REGION • Arica, Playa Arenillas Negras sector; 18°28'42"S,



Academic editor: Arturo Angulo

Received: 4 December 2023

Accepted: 24 February 2024

Published: 12 March 2024

Copyright © The authors. This is an open-access article distributed under terms of the Creative Commons Attribution License (Attribution 4.0 International – CC BY 4.0)

Figure 1. Distribution of *E. polytremus* along the Pacific coast of South America showing historical and the new records of the species. The letters in the figure represent: A) Geographical distribution described by Ayala (1994), B) Subsequent catch record by Daza et al. (2011) and C) New record from Arica, Chile.

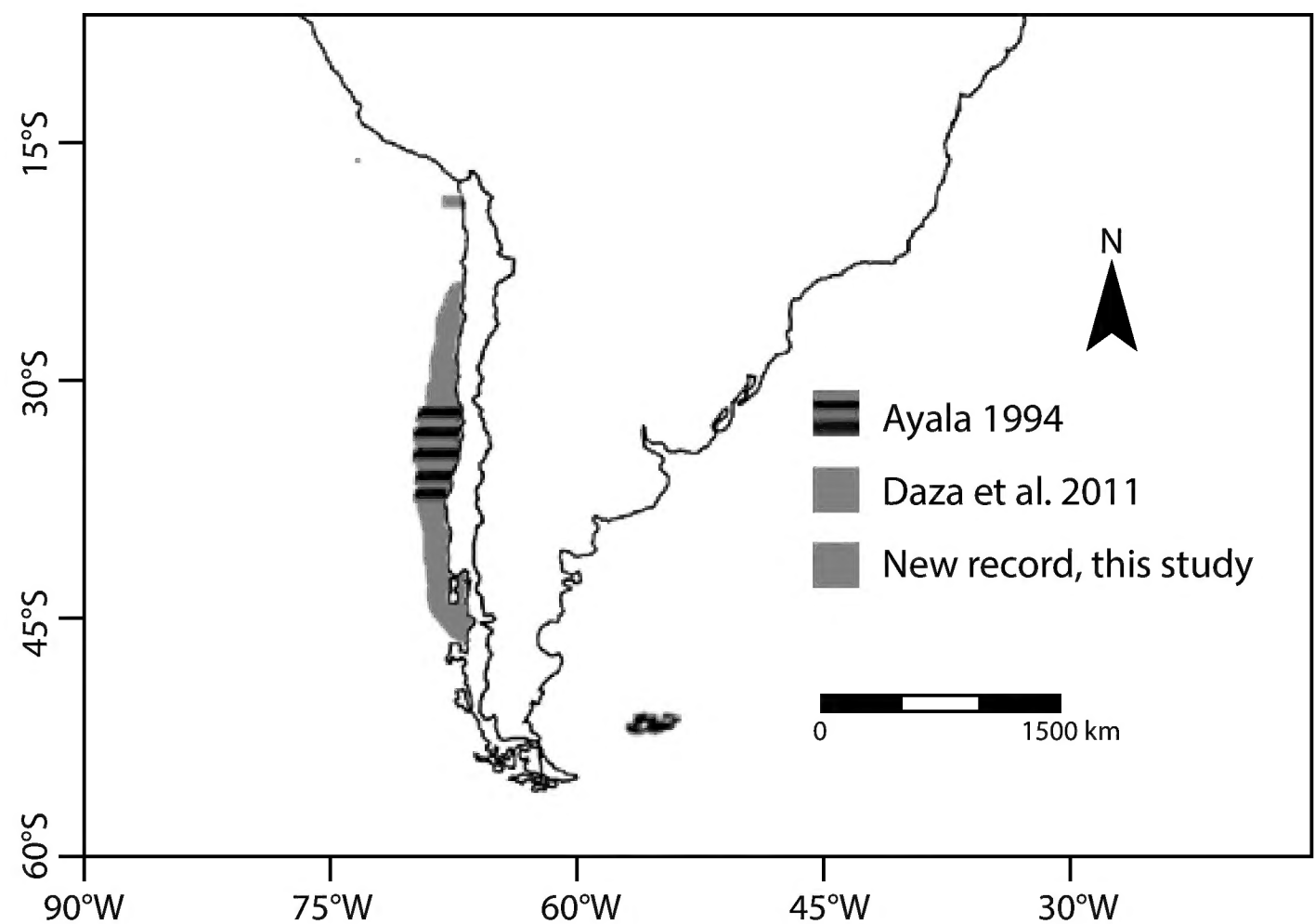
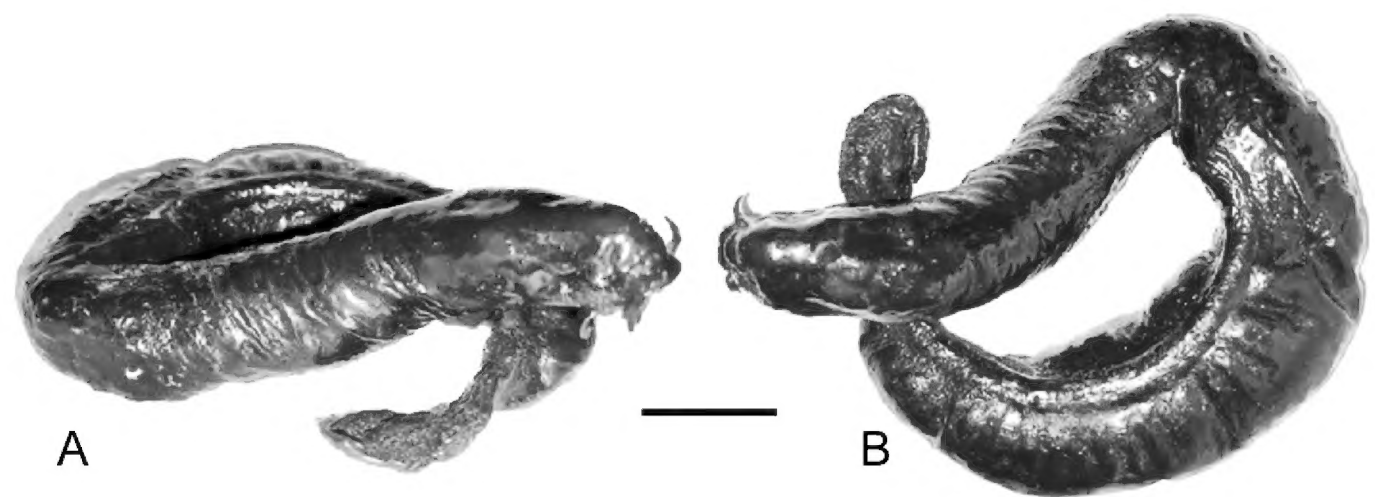


Figure 2. *Eptatretus polytremus* collected in Arica, Chile. **A.** Lateral view. **B.** Dorsal view. Scale bar = 3 cm.



070°19'16"W; 25 m depth; 17.XI.2018; F. Méndez-Abarca leg.; captured with speargun; 1 specimen, sex indet., COLECIC0369FRA.

Identification. The identification of the specimen was based on meristic and morphometric characters described by Reyes and Hüne (2016). Our specimen has a body length of 194 mm, well below the maximum recorded length of 600 mm for the species (Gon and Heemstra 1990). Its body is elongate, the head and mouth are small, and there are three pairs of barbels. There is a fin-like fold on the tail and belly, and there are 13 gill apertures. Morphological features coincide with those provided by Reyes and Hüne (2012).

DISCUSSION

The previous known geographic distribution of *Eptatretus polytremus* was from the city of Valparaíso (Valparaíso Region) to Talcahuano (BíoBío Region) (Ayala 2016), with interlying records from the city of Caldera (Atacama Region) to the city of Puerto Montt (Los Lagos Region) (Nelson 1994) (Figure 1). The specimen we captured in coastal waters off the city of Arica would seem to increase in the geographic distribution of *E. polytremus* by over 1,600 km.

The finding of *E. polytremus* at Arica, Chile, represents a considerable expansion in this species' known geographic range, suggesting the potential for its occurrence along most of the northern Chilean coast. The widely separated localities from where *E. polytremus* is known suggests that this species has a continuous distribution from Caldera to the northern region of Tarapacá. However, additional sampling within the gap between these two regions is needed, especially within the context of the current global biodiversity crisis. Thus, our new data is both an important discovery that extends the known geographic distribution of *E. polytremus* and represents a valuable opportunity to enhance the understanding of its biology and ecology.

ACKNOWLEDGEMENTS

We thank the Programa de Magíster en Acuicultura, Mención Recursos Hidrobiológicos y Mención Acuíponía (Master's Programme in Aquaculture, mention in Hydrobiological Resources and mention in Aquaponics), Universidad Arturo Prat, Chile. We also thank Lorena Avilés-Arredondo for reviewing the structure of the manuscript. Finally, we thank the reviewers and the academic editor for their positive contribution that helped to improve the manuscript.

ADDITIONAL INFORMATION

Conflict of interest

The authors declare that no competing interests exist.

Ethical statement

No ethical statement is reported.

Funding

This study was financially supported by Animal kingdom foundation.


Author contributions

Conceptualization: FMA. Investigation: FMA. Resources: FMA. Visualization: EAM. Writing – original draft: FMA, RPV. Writing – review and editing: FMA, RPV, EAM.

Author ORCID iDs

Felipe Méndez-Abarca  <https://orcid.org/0000-0003-3848-1885>

Renzo Pepe-Victoriano  <https://orcid.org/0000-0002-7630-1411>

Enrique A. Mundaca  <https://orcid.org/0000-0002-1665-4434>

Data availability

All data that support the findings of this study are available in the main text.

REFERENCES

- Daza E, Vargas C, Oyarzún C, Bucarey D, Aedo G** (2011) Estudio biológico pesquero de anguila en la XII Región de Magallanes y Antártica chilena. IFOP. Punta Arenas, Chile, 142 pp.
- Fernholm B** (1998) Hagfish systematics. The biology of hagfishes. Chapman & Hall, London, UK, 578 pp.
- Fernholm B, M Norén, SO Kullander, AM Quattrini, V Zintzen, CD Roberts, H Mok, C Kuo** (2013) Hagfish phylogeny and taxonomy, with description of the new genus *Rubicundus* (Craniata, Myxinidae). Journal of Zoological Systematics and Evolutionary Research 51: 296–307. <https://doi.org/10.1111/jzs.12035>
- Fernholm B, Mincarone M** (2023) A new species of the hagfish genus *Eptatretus* (Myxinidae) from the Bahamas, western North Atlantic. Journal of Fish Biology 102: 962–967. <https://doi.org/10.1111/jfb.15343>
- Gon O, Heemstra P** (1990) Fishes of the Southern Ocean. Smith Institute of Ichthyology. Grahamstown, South Africa, 462 pp.
- Méndez-Abarca F, Pepe-Victoriano R** (2020) Peces marinos del norte de Chile: guía para la identificación y mantención en cautiverio. Fundación Reino Animal & ONG por la Conservación de la Vida Salvaje, Arica, Chile, 79 pp.
- Nelson JS** (1994) Fishes of the world. Third edition. John Wiley & Sons, New York, USA. 600 pp.
- Reyes P, Hüne M** (2012) Peces del sur de Chile. Fundación Ictiológica, Santiago, Chile, 500 pp.
- Young Sun S, Jin-Koo K** (2020) A new species of hagfish, *Eptatretus wandoensis* sp. nov. (Agnatha, Myxinidae), from the southwestern Sea of Korea. ZooKeys 926: 81–94. <https://doi.org/10.3897/zookeys.926.48745>